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ABSTRACT

This guide contains a bibliography of curricula (available from agencies, organizations, and through ERIC), audiovisual aids, children's books, and publications about resource recovery. Resource recovery is presented as a strategy to reduce air and water pollution, to conserve natural resources, and to save energy. These materials (suitable for students in grades K-12) are listed to help promote the goal of reducing dependence on waste disposal by reducing the amount of waste generated and by recovery of materials and energy from waste. Curricular areas in resource recovery range from industrial arts and home economics to educational guides for educable mentally handicapped students. Five basic tenets of resource recovery are presented, with a list of student activities for each. They are: (1) reduction; (2) reuse; (3) recycling; (4) conversion; and (5) disposal. It is suggested that greater participation, increased communication, and expanded community involvement could result from student use of the activities. (ML)

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Teacher's Guide: Educational Materials in Resource Recovery: Grades K-12

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MINNESOTA POLLUTION CONTROL AGENCY
Division of Solid and Hazardous Waste

Second Edition

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Cathy A. Berg
Division of Solid and Hazardous Waste
Minnesota Pollution Control Agency
June, 1984

Printed on Recycled Paper

This Guide was prepared by the Solid and Hazardous Waste Division under the authority of the Waste Management Act of 1980, which has as its goal to reduce dependence on disposal of waste by reducing the amount of waste generated and through recovery of materials and energy from waste.

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Abbreviations Used in This Text

EAC . . . . . Environmental Action Coalition

EPA . . . . . Environmental Protection Agency

MUCC . . . . . Michigan United Conservation Clubs

Hennings . . . . . Author of **Keep the Earth Clean, Blue & Green**

INTRODUCTION

Educational materials for grades K-12 are relatively scarce in resource recovery and solid waste management, compared with the wealth of materials available on other natural rescurce problems. However, since the problems with solid waste are just recently being recognized, and since the activities are innovative, the curricula are unique and interesting to all ages.

Students participating in activities such as composting and recycling show increased communication, and more willingness to participate in other activities. Greater participation can result in expanded communication activities for the teacher and increased community involvement and improved cost-effectiveness for community recycling projects.

This report includes a bibliography of curricula, audio-visuals, and children's books, whose subject matter is primarily resource recovery. Curricula areas in resource recovery range from industrial arts and home economics to educational guides for educable mentally handicapped.

Resource recovery, including source separation, reduces air and water pollution, conserves natural resources and saves energy. There are five basic tenets of resource recovery which the students should become familiar with: reduce, reuse, recycle, convert, and dispose.

Reducing is simply decreasing the amount of waste entering the waste stream. There are several types of activities which explore this idea:

1. Packaging activities.
2. Exploring beverage container systems.
3. Roadside Litter Investigations.
4. Investigating Home Wastes and Exploring Waste Activities.
5. Food Waste Activities.
6. Why is There So Much Waste? activity.
7. "Throwaway Three" skit.

When you are finished with an item for one purpose, put it to use again. This is called **reuse**. Activities which utilize this concept are:

1. Games, science equipment, and crafts that reuse materials.
2. Garbage Creations (toys, birdfeeder).
3. Make plant containers out of kitchen waste products (bleach bottles, margarine tubs, etc.).
4. Make bird feeders out of home waste products (bleach bottles, etc.).
5. Make terrariums out of glass jars.
6. Give and accept "hand-me-downs."
7. "Use it Again" and "Swap Box" activities.
8. Creative Waste Activity.
9. Make adventure playgrounds out of old tires, wood, etc.
10. "Don't Throw it Away! Reuse it!" activity.

Recycling is the process of making new things out of old items. For example, old aluminum cans are melted down to make new aluminum cans. There are many interesting and fun activities to do with recycling:

1. Visit a recycling center.
2. Make your own recycled paper.
3. Make your own paper planting cup.
4. Visit a waste processing plant.
5. Start your own recycling center.
6. Play the game "Recycling Musical Chairs."
7. "Recycle the Words" activity.
8. Recycling crossword puzzle and maze.

Conversion is the process of changing solid waste, through chemical or physical process, into some other material, e.g., energy or compost. Activities which utilize this concept are:

1. Composting activities.
2. Incineration activities.
3. Vermi-composting activities.
4. Newspaper logs activity.

Even if you reduce the amount of waste entering the waste stream and recycle and convert all that is possible, there will still be waste left to **dispose**. The safest method is a sanitary landfill. Activities which explore this idea are:

1. Make a landfill activity.
2. Make an open dump activity.
3. Visit a landfill.
4. Leachate activity.
5. Investigate landfills and open dumps.

CURRICULA

Available from Agencies and Organizations

A Curriculum Activities Guide to Solid Waste and Environmental Studies. L-80-6. The activities in the guide offer students a general understanding of the problems of solid waste management and provide a framework for further study and exploration of more technical works on the subject. $12.00. Available from: Institute for Environmental Education, 8911 Euclid Avenue, Cleveland, OH 44105 or call 216/791-1775.

Composting Curriculum. Developed for the New Brighton, Minnesota Neighborhood Composting Project. Activities are aimed at school children from K-12. Each activity sheet contains concepts, grade level, objectives, background and bibliography or resources. One of few activities focused on composting. Available from the Minnesota Pollution Control Agency (MPCA). (See Minnesota Resources.)

CONNECTIONS: A Curriculum in Appropriate Technology for 5th and 6th Grades. This interdisciplinary curriculum is designed for 5-6 grades. The curriculum is designed to teach students to recognize and use appropriate technology and therefore use a local, small scale approach to a universal problem. Recycling is the theme of several lesson plans. Developed by the National Center for Appropriate Technology. Available from the Environmental Education Project, Portland State University, P.O. Box 751, Portland, OR 97207. Free for postage ($2.30).

Curbside Recycling Program Grade 5 Curriculum. This unit, developed for the city of Minneapolis Curbside Recycling Program (Minnesota), explores the interrelationship between the student's waste habits and his/her community's garbage problems. The unit is divided into fifty-minute sessions and is five days long. Can be easily adapted to other areas. Available from the MPCA. (See Minnesota Resources.)

Divide and Conquer: A Teacher's Guide to Waste Management. Grades 4-6 and Grades 7-10. Provides teachers with background information and classroom activities on the topic of solid waste. The activities explore current throw-away habits and the resulting waste of valuable resources. Then the activities focus on what can be done to conserve and recover the resources we are wasting. Available from the Educational Resources Coordinator, Information Services Branch, Ontario Ministry of the Environment, 135 St. Clair Avenue West, Toronto, Ontario M4V IP5.

Don't Waste Waste. Environmental Action Coalition. Lesson plans for Grades 4-6. Emphasis on student activities. Excellent program. Available from Environmental Action Coalition, 156 Fifth Avenue, New York City, NY 10010. Also available from ECOL Library.

Eco-crafts IV. A pamphlet describing holiday projects for environmentally-minded persons. All projects are made from scrap materials that usually wind up in the trash. Published by the Ohio EPA. Photocopies available from MPCA. (See Minnesota Resources.)

Energy Conservation, Activities for the Classroom K-12. From the Kentucky Department of Education. The guide consists of 86 energy activities, each with a different title, covering some phase of energy conservation and the subject area which is most relevant (math, art, science, language, etc.). **A Recycling Learning Package for Elementary Students** from the Kentucky Department of Education is developed for students, that they might learn about the concepts of recycling, conservation, and problems with litter. Available from the Kentucky Department of Education, Frankfort, KY 40601, or telephone 502/564-4770.

Energy Curriculum Packet. State Energy Agency. Lesson plans on numerous energy topics including conservation. 1977. **Environmental Education Option 1 Project** curriculum development project of the Minnesota Department of Education, the Minnesota Department of Natural Resources and the Minnesota Environmental Sciences Foundation. Packets produced include: Energy/Consumerism (Home Economics), Environmental Education Materials (Physical Education), Environmental Value Dilemmas (Science and Social Studies). Available from Minnesota State Department of Education, 550 Cedar Street, St. Paul, MN 55101, or telephone 612/296-4069.

Energy, Food and You curriculum guides which deal with composting. Grades K-12. Available from: Washington State Office of Environmental Education, c/o Shoreline District Offices, 158th and 20th Avenue, N.E., Seattle, WA 98155.

Environmental Education Activities Manual. Contains 300 activities written by teachers for teachers. Complete grade level activities are geared to help the learner understand basic environmental education concepts, develop needed problem-solving skills, clarify environmental values, and become involved in community problem-solving actions. Activities are arranged by grade levels K-12. Available from Dorothy Cox, 32493 Shady Ridge Drive, Farmington Hills, MI 48018. Price $13.00.

Environmental Education K-12 Curriculum Guide. Available from Hawaii, contains a section on recycling. The guide contains program activities, goals and objectives and classroom situations, as well as a bibliography of books used in development of the guide. Available from Hawaii State Department of Education, P.O. Box 2360, Honolulu, HI 96804.

Equinox. Available from the Delaware State Department of Public Instruction. A model for the environmental education curriculum for K-12. There is no specific unit on solid waste. Available from Delaware State Department of Public Instruction, Townsend Building, Federal Street at Lookerman Street, Dover, DE 19901.

Follow the 3 R's: Recycle, Refuse, Reuse. An intermediate level activity which contains two activities, one for class and one in the community. Through the activities, students discover that recycling saves energy. Available from the MPCA. (See Minnesota Resources.)

Garbage Reincarnation: Interdisciplinary Approach to Materials Conservation and Recycling ($5.95). An educational packet directed toward elementary school students to improve understanding of solid waste management problems and how people, each of us, can solve them. Available from: Sonoma County Recycling Center, P.O. Box 1375, Santa Rosa, CA 95403.

Great Garbage Machine. A teacher's kit which consists of a pair of posters (modified from Oregon), and written materials based on the posters. The kit is intended for grades seven through ten. Inquiries about the kit may be sent to the Ontario Ministry of the Environment, 135 St. Clair Avenue West, Toronto, Ontario M4V 1P5.

Guidelines for Recycling Waste in Schools. 8½" x 11", 3 pages, which gives how-to's for teachers and students who wish to organize a recycling project, and ideas for teaching recycling in school. 35¢. Available from Oregon Department of Environmental Quality, Solid Waste Division, Box 1760, Portland, OR 97207 (see DEQ order form).

Investigating Your Environment, Teaching Materials for Environmental Education. Includes packaging, renewable, nonrenewable resources, roadside litter. Grades 3-6. U.S. Forest Service — USDA, P.O. Box 2417, Washington, D.C. 20013.

Keep the Earth Clean, Blue and Green. George Hennings, Dorothy Grant Hennings, New York Citation Press, 1976. A source book for elementary and junior high teachers. Grade levels are not assigned to most activities, it is for the teacher to determine whether a particular investigation is practical. (Out of print, available at some libraries.)

Let's Recycle! Lesson Plans for Grades K-6 and 7-12. The guide is designed to inform students of solid waste problems and the options to disposal. The lesson plans deal specifically with waste and recycling but encompasses social and economic issues as well. **Your World, Your Environment** story book method of explaining ways in which children can improve their environment. Available in Spanish and English. Available from the MPCA. (See Minnesota Resources.)

"Life in Guam" series for secondary students. Solid waste matters are given coverage in the **Human Impact** volume. Stresses are four basic problems for mankind: survival, population growth, conservation, and alternative technologies. Available from the Department of Education, Government of Guam, P.O. Box DE, Agana, Guam 96910.

Litter Prevention: A First Step to Improving the Environment. A pamphlet that gives ideas for the classroom, schoolwide projects, and community action. Available from Keep America Beautiful, Inc., Program Development, 99 Park Avenue, New York, NY 10016.

Making A Difference: A Curriculum Process Guide for Community Environmental Problem-Solving Projects. A step-by-step plan for conducting a community problem-solving project, including recycling. Secondary students work from real problem or issue. Developed by Conservation Consultants. $8.75. Available from Resource Recycling, 928 Second Street, Third Floor, Sacramento, CA 95814.

Project SAVE: Student Action for Valuing the Environment. Prepared by the Indiana Department of Public Instruction. Activities and community awareness units teach students to be concerned about their environs. Some units specifically directed to solid waste management. Grades K-12. Available from Indiana State Department of Education, Room 227, State House, Indianapolis, IN 46204, or telephone 317/633-5640.

Put Your Garbage to Work. Fifty page book plus poster (20 x 30) dealing with household waste, the raw materials and energy needed to produce the products and how wastefully all is used. Food and composting is one chapter. Suggestions of what to do, activities for children. $3.50 plus postage. Available from The Group for Recycling in Pennsylvania, P.O. Box 7347, Pittsburgh, PA 15213.

Recycle: For Grades K-3, Recycle: For Grades 4-6. The packet presents several basic concepts in a series of varied activities that lead to a simple, but complete, understanding of where waste comes from, how we use it, the problems it presents and recycling as a solution. Available from Steppingstones, 10 Willow Avenue, Sommerville, MA 02144, or telephone 617/776-5423.

Recycling. Information on everyday materials that can be recycled, such as aluminum, glass, paper. Reprinted from **Ranger Rick's Nature Magazine.** Single copy free; additional 20¢ ea.; 50 or more, 16¢ ea. **Recycle for the Birds** — easy to understand description of how throw-aways such as empty milk cartons, coffee cans, and bleach bottles can be recycled into bird feeders. Single copy free; additional 15¢ ea; 50 or more 12¢ ea. **The ABC's About Beverage Containers** — a comprehensive review of the refillable versus throwaways controversy. Explains why "bottle bills" are an effective conservation tool. Single copy free; additional 15¢ ea; 50 or more, 12¢ ea. Available from National Wildlife Federation, 1412 16th Street N.W., Washington, D.C. 20036.

Recycling: An Interdisciplinary Approach to Environmental Education. Environmental Services Division. Rodale Press, Inc., 1973. "Nothing Ever Gets Lost" is the theme of this unit. It is designed to develop students into thoughtful users instead of affluent abusers through easy classroom experiments for Grades K-8. Available from Rodale Press, 33 E. Minor Street, Emmaus, PA 18049, or ECOL Library.

Recycling — Curriculum for Grade 3. Developed, and distributed by the Kent Environmental Education Program. **Solid Waste — Use It Again Sam,** by Rosann Gaunt and Jean Kurzhals, Elementary and Secondary teaching edition. Units stress the importance of recycling. Many short projects are included for math, science, and reading enrichment. 20¢ ea. **To the Dump-Solid Waste Unit,** by Corky Reynolds, an action packed junior and senior high unit with step-by-step guide on how to teach a solid waste unit. It includes a field guide for a landfill visit, returnable bottle bill information, legislator's addresses, short current readings, simulation games, etc. 75¢. Available from Kent Intermediate School District, 2650 East Beltline, S.E., Grand Rapids, MI 49506; or 616/949-7270.

Recycling Education Materials. A three-part booklet on recycling for classroom use offers a classroom papermaking demonstration guide, a student booklet on recycling, reuse and waste reduction, and a teacher's guide. Prepared by Franklin Associates Limited for the Kansas City Public Works Department. Although these materials were developed specifically for the Kansas City area, they can be adapted to other areas. Available from the MPCA. (See Minnesota Resources.)

Recycling Soap Bits (with solar energy). **Recycling the Organic Way** (composting). Two activities with instructions. Elementary school level. Available from: The Garden Club of America, 598 Madison Avenue, New York, NY 10022.

Reduce, Reuse, Recycle: A Handbook for Arizona Schools. This handbook describes how to develop a recycling project in your school. The handbook includes descriptions of recyclables, curriculum ideas and how to make it happen. Available from the MPCA. (See Minnesota Resources.)

Reject, Reuse and Recycle — A Teacher's Guide to Resource Conservation in the Home by Diane Bruce and Eda Favaro. A resource unit which raises consciousness of the finite nature of the world's resources and of each of our responsibilities in preserving these resources. Units include "Recognizing Resource Waste," "Packaging and Resource Waste" and "Reducing Garbage and Recycling." Available from British Columbia Teachers' Federation, Lesson Aids Service, 2235 Burrad Street, Vancouver, B.C. V6J 3H9.

Resource Recovery: Teacher's Aide. Florida Department of Environmental Regulation, June 1980, available from Solid Waste Program, Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, FL 32301. Introduces the instructor and, in turn, the students to the developing area of solid waste resource recovery. The package contains definitions, methods, causes and effects, costs, and benefits of resource recovery presented in the form of behavioral objectives suitable for use in curricula of Grades 4-12.

Solid Waste, Every Man's Pollutant. Prepared by the Environmental Education Center. Transparencies and activities to help the student understand the solid waste problem, to see himself as part of the problem, and to recognize the need to recycle and conserve resources. Available on loan basis from the ECOL Library.

Solid Waste Packet. Litter, recycling, reuse, energy generation, land use, with lots of activities. ($1.50 postpaid.) Available from: MUCC, P.O. Box 30235, Lansing, MI 48909; 517/371-1041; (See MCCU order form).

Something from Nothing: A Grade Four Environmental Education Unit Focusing on Waste Resources. A six week unit which emphasizes active student involvement. Students participate in activities which teach that waste products are continually being produced, waste products can be reused, and that everyone in the school and the community has a responsibility to reuse (and recycle) waste products. Available from The Teacherage, Dovercourt School, 13910 – 122nd Avenue, Edmonton, Alberta T5L 2W3.

Spike and His Friends Recycle. A coloring storybook which explains what recycling is, how to recycle and what can be recycled, using Spike (a bulldog), and other wildlife friends. 75¢ per copy for 100 copies or more; 50¢ per copy for more than 200 copies. Single copy price is $1.50, postage included. Available from Pennsylvania Roadside Council, Inc., 44 East Front Street, Media, PA 19063 or telephone 215/565-9131.

Suggested Activities for Environmental Education in the Secondary Schools and **Suggested Activities for Environmental Education in Elementary Schools**. From Texas Education Agency. Each publication contains a one-page chapter entitled "The Problems of Solid Waste and Recycling." There are also one or two page chapters on air pollution, water pollution, wildlife, the energy crisis, soil pollution, food pollution, population, and urbanization. Available from Texas Education Agency, 201 East 11th Street, Austin, TX 78701, or telephone 512/475-3271.

Teacher's Resource Guide for Environmental Education. First edition, Grades K-8, Second edition Grades K-12. The areas covered are air, man in the environment, plants, rocks and minerals, soil, water, and wildlife. The section on man in the environment deals with resource recovery matters. Each unit contains an introduction and sections on basic concepts, suggestions and activities, vocabulary and a bibliography. Available from the Arizona Department of Education, 1535 West Jefferson, Phoenix, AZ 85007, or telephone 602/271-4361.

Teaching Resource Recovery in Industrial Arts, 1974; Teaching Resource Recovery in Science, 1974; Teaching Resource Recovery in Social Studies, 1974; Resource Recovery and You, 1974; Teacher's Guide, Resource Recovery Overview, 1974. National Association of Secondary School Principles, and National Center for Resource Recovery, Inc. Available from National Center for Resource Recovery, 1211 Connecticut Avenue, N.W., Suite 800, Washington, D.C. 20036. Also available from ECOL Library.

Teaching Science With Garbage, by the Group for Recycling in Pennsylvania. A booklet full of activities and experiments on solid waste. Includes how to make mini-landfills, litter gardens, and math units on weighing throwaways. For all grades. 25¢ plus postage. **The Importance of Being a Garbologist** by the Group for Recycling in Pennsylvania. Aimed at children, this comic-book type of publication explores the three R's – reuse, recycle, and refuse, and also contains ideas for projects which illustrate these concepts. 25¢ plus postage. Available from the Group for Recycling in Pennsylvania, P.O. Box 7391, Pittsburgh, PA 15213.

The Case Study Case: Case Studies in Solid Waste. The Case Study Case is a collection of case studies based on Minnesota solid waste issues and laws. Each case study consists of introductory background information, an experience associated with solid waste laws; decision activities; reader information cards in economics, legislation, and the environment; the current status of the solid waste case and suggestions for local community study of the issue. (See order form attached.) Available from Minnesota Environmental Sciences Foundation, Room 312, Security Building, 2395 University Avenue, St. Paul, MN 55114, or telephone 612/642-9046.

"The Message in the Bottle" teaching unit from Illinois Office of Education, discusses the issues of attitude, litter, and energy in the Illinois Bottle Bill. Available from the Illinois State Department of Education, 100 North First Street, Springfield, IL 62777.

The Recyclum: A Resource Conservation Curriculum for Grades K-6. This booklet enables teachers at the grade-school level to incorporate into their curriculum activities which will increase the students' awareness of wasteful resource use, and explains alternatives to this lifestyle. Contains 38 educational activities. $11.00. Available from Eco-Alliance, Inc., P.O. Box 101, Corvallis, OR 97339.

The Trash Monster Education Program. An animated filmstrip, introduces solid waste concepts and motivates pupils' interest in the program. A young boy and girl go to the movies to see "The Attack of the Trash Monster." In this movie the town of Gardentown is attacked by the trash monster, but is saved through the efforts of two hard-working scientists and the dedicated townspeople. After the movie is over, the boy and girl discover that their own town looks a lot like Gardentown — just before the trash monster came! Program includes teacher's guide, natural resource cards, program record sheets, reorder form, pupil booklets, pre-tests and post-tests, trash monster stickers, home information leaflets (families have the opportunity to discuss solid waste concepts learned at school). Grade 6. **The Wizard of Waste Education Program,** an animated filmstrip, introduces solid waste concepts and motivates pupils' interests in the program. "The Wizard of Waste" filmstrip tells about Dorothy and her friends as they travel the long, littered road in search of the Wizard, a kindly man who has solved solid waste problems for the people of Pleasantville. Program includes teacher's guide, class poster, picture cards, program record sheet, reorder form, pupil booklets, pre-tests and post-tests, self surveys, "Waste Wizard" badges, home information leaflets (families have the opportunity to discuss solid waste concepts learned at school). Grade 3. Available from California State Department of Education, P.O. Box 271, Sacramento, CA 95802 (see order form).

Thinking Globally and Acting Locally: Environmental Education Teaching Activities. Developed by Lori D. Mann and Dr. William B. Stapp. 1982. This is the 17th volume of ERIC/SMEAC's **Teaching Activities in Environmental Education** series. Teaching activities include solid waste, resource management, pollution and lifestyle and environment among others. $12.50 includes postage and handling. Available from ERIC Clearinghouse for Science, Mathematics and Environmental Education. The Ohio State University. College of Education and School of Natural Resources, 1200 Chambers Road, Third Floor, Columbus, OH 43212.

Training Student Organizers Curriculum. High school and college curriculum on how to train young people to organize a community clean up, arts project or other environmental improvements. Part I includes urban environmental issues such as recycling. Part II deals with the "how-to's" of project organizing. $2.00 per copy. Available from CENYC, 51 Chambers Street, Room 228, New York, NY 10007. Make checks payable to "Council on the Environment, Inc."

Tuning the Green Machine: An Integrated View of Environmental Systems. Institute for Environmental Education, The Association of New Jersey Environmental Commissions, Oceana Publications, Inc., 1978. Available from: Oceana Publications, Inc., 75 Main Street, Dobbs Ferry, NY 10522; $10.75 prepaid. Introduction to principles of ecology. A good review for teachers who wish to introduce environmental education in their curriculum.

Waste in Place: A Sequential Curriculum For Kindergarten Through Sixth Grade. Kindergarten — students learn to differentiate between nature and man-made objects; **First Grade** — students learn to perceive the distinctions between waste and litter; **Second Grade** — the importance of containing trash is studied; **Third Grade** — the "normative system" (accepted ways of behaving that supports attitudes toward waste handling) is examined; **Fourth Grade** — students study how the "normative system" is applied in their homes, school, and neighborhood; **Fifth Grade** — students consider the wide range of waste disposal techniques now employed in their community and throughout the country; **Sixth Grade** — through a simulation game that requires them to decide (for an imaginary community) where the new sanitary landfill will be located, students examine the decision-making process involved in waste management. Available from: Keep America Beautiful, Inc., 99 Park Avenue, New York, NY 10016 or call 212/682-4564. Also available from the ECOL Library.

Waste Not, Want Not: A Unit for Elementary School Children on the Topic of Solid Waste. This unit is designed to acquaint youngsters with the waste problem and its possible solutions. Although designed for Chaska Elementary School children, the activities are applicable in other areas. The unit was developed by the Chaska League of Women Voters in 1982. Available from MPCA. (See Minnesota Resources.)

Your Life and Mine: Problems and Projects in Conservation by Daniel McCollum. This two-part series consists of a comprehensive teacher's guide and a student research guide. Focused on minimizing negative effects on the environment and maximizing students' involvement in conservation, these books are well written and effective. Projects include recycling, composting and energy economy. Teacher's manual is $4.00 for individual copies, $3.00 each for 5 or more copies, $2.50 each for 10 or more copies, $2.00 each for 25 or more copies, and $1.50 each for 50 or more copies. Student research guide is $2.00 for individual copies, $1.50 each for 5 or more copies, $1.25 for 10 or more copies, $1.00 for 25 or more copies, and 75¢ for 50 or more copies. Add $1.00 for postage and handling for individual copies of the materials and 50¢ for each additional copy. Available from Shakerag Press, 713 Arlington Court, Champaign, IL 61820.

AVAILABLE FROM ERIC (See Order Form).

ED180826. **Energy Conservation Teaching Activities for Home Economics Classrooms.** Jedlicka, Ella, Ed., University of Northern Iowa, Cedar Falls, Department of Home Economics Education.

Activities intended to meet the special needs of home economics teachers who wish to include energy education activities in their curricula. Includes recycling and waste disposal.

ED179331 (not available in paper copy). **Implementation Into Curriculum of Wilderness Adventure Program.** Bonney, James D.

Guide for Teachers. Subject matter of unit suitable for junior and senior high school students, includes recycling and waste disposal.

ED161754 Microfiche, $.83; HC, $3.50 plus postage. **A Guide For Teaching Regional Environmental Planning. Final Report of Project — Inservice Personnel Development: Regional Environmental Planning Workshops for Tri-County Secondary School Teachers.** Gallagher, James Joseph; Ed. Science and Mathematics Teaching Center, Michigan State University, East Lansing.

Secondary School Curriculum. The second part of the guide defines and describes regional environmental planning. It covers transportation, water supply, pollution control, waste disposal, and materials recycling.

Recycling: Activities for the Classroom. Bowman, Mary Lyne; Coon, Herbert L. ($4.50). Available from Information Reference Center (ERIC/IRC), The Ohio State University, 1200 Chambers Road, 3rd Floor, Columbus, OH 43212. Also available from ECOL Library.

Eighty classroom activities for elementary through high school students. Each activity is classified according to appropriate grade level, subject matter and recycling concept involved.

Award Winning Energy Education Activities for Elementary and High School Teacher. Carey, Helen H., Ed. Available from: ERDA Technical Information Center, P.O. Box 62, Oak Ridge, TN 37830 (no price quoted).

Grades K-12. Each entry includes a brief summary of what the activity teaches, what the students do, and how the activity might fit into the existing curriculum.

ED129677 — Microfiche, $.83; HC, $6.01 plus postage. **Implementing Energy Education in Florida's High Schools: A Two Week Credit Institute for Teachers in North Florida, Final Report Vol. II.** La Hart, David E.; Allen, Rodney F. Energy Research and Development Administration, Washington, D.C.

High school curriculum units including litter clean-up and recycling household materials.

ED098070 — Microfiche, $.76; HC, $5.70 plus postage. **Trash — Our Only Growing Resource. Environmental Ecological Education Project.** Giebelhausen, Maribeth R.; and others. Missouri State Department of Education, Jefferson City; Parkway School District, Chesterfield, MO.

Designed for seventh-grade students for use on the problems of waste disposal and the function of recycling, the role of the consumer in determining types of packaging materials, facts about biodegradable and non-biodegradable materials.

Man and Environment for the Intermediate Grades; A Curriculum Guide for Environmental Studies for Grades 4-8. Available from National Association for Environmental Education, 8940 SW 73rd Street, Miami, FL 33143. ($4.00 ea.; subject to change on new printing.)

Environmental studies modules for Grades 4-8. Includes a module for each grade level on "Production, Consumption, and Recycling — Intelligent Use of Natural Resources."

ED097220 — Microfiche, $.76; HC, $3.32 plus postage. **Paper, Environmental Ecological Education Project. Revised Parkway School District, Chesterfield, MO.** Bureau of Elementary and Secondary Education, Washington, D.C.

Thirteen major concepts relating to paper, the papermaking process and the importance of recycling.

ED071267 — EDRS Price — Microfiche, $.76; HC, $13.32 plus postage. **Me and My Environment, Unit IV: Transfer and Cycling of Materials in My Environment.** Office of Education, HEW, Washington, D.C.

Thirteen to 16 year old educable mentally handicapped children. Includes activities on compost, trash, recycling, and energy. Activities are organized into materials, teaching strategies, and anticipated student behaviors.

ED059947 – Microfiche, $.76, HC, $1.95 plus postage. **A Save Our Trees Project for Primary Grades.** Lundgre, Laurie L., Office of Education, DHEW, Washington, D.C.

Second grade students motivated teachers, schools, parents, and community in a cooperative effort to collect used paper for recycling. Money earned was to go toward an arboretum at the school.

Solid Waste (Student Resource Book V in the Investigating Your Environment Program). Addison-Wesley Publishing Company, South Street, Reading, MA 01867 (Code Number 0937, $2.01 plus postage and handling).

Resource papers for high school students. Explores solid waste management, reclaiming, and recycling of various kinds of wastes, exploring aspects of energy and recycling.

ED122464 – Microfiche, $.83; HC, $2.06 plus postage. **Me and My Environment, Formative Evaluation Report 5. Assessing Student Abilities and Performance: Year 3.** Callahan, William P., Bureau of Education for the Handicapped, Washington, D.C.

For 13 to 16 year old educable mentally handicapped. Evaluation report on transfer of cycling materials around a game focused on recycling.

ED101940 – Microfiche, $.76; HC, $8.24 plus postage. **East Syracuse – Minoa Schools Environment Education Materials. Elementary Package, Grade 1 through 5.** East Syracuse – Minoa Central Schools, East Syracuse, New York.

Grade 5 unit is concerned with the wisest use of renewable resources and encourages the child into a commitment and involvement.

ED045437 – Microfiche, $.76; HC, $3.32 plus postage – Grades 7-12. ED045436 – Microfiche, $.76; HC, $3.32 plus postage – Grades K-6. **Environmental Education Instructional Activities.** New York State Education Department, Albany.

Teacher's Guide. Contains basic concepts, activities, and questions that emphasize the role of man as a participant in, rather than master of, his natural surroundings. Includes recyclement topic.

ED237355 – **Solid Waste/Energy Curriculum** – Vivan, V. Eugene; and others.

Provided are solid waste/energy curriculum materials for Grades K-2, 3-4, 5-6, 7-9, and 10-12. Separate folders containing units of study (focusing on trash, litter, and recycling) are provided for kindergarten (four units), grade 1 (two units), and grade 2 (two units). Folders contain teachers' directions and activity cards which include picture coloring, games, and multiple-choice questions for beginning and non-readers. Materials for Grades 3-4 consist of three units focusing on people and garbage, recycling and reuse, and "litterly speaking" activities. Each unit consists of teacher-led activity cards. Materials for Grades 5-6 consist of six units, each containing five to six student-directed task cards. Topic areas include trash disposal, recycling, energy, costs, and eco-action. Materials for Grades 7-9 consist of four units containing five to six task cards. Topic areas include solid waste in history, hazardous wastes, landfills, and recycling. Ten envelope-style, self-explanatory, student-centered activities are provided for Grades 10-12. These activities are designed for earth science, science (chemistry, physics, biology), social studies/economics, and art teachers/classes. Teaching briefs (which include instructional strategies, background information, and other materials) are included.

ED224709 – **Living Lightly in the City. An Environmental Education Curriculum for Grades 4, 5, and 6.** O'Connor, Maura; McGlauflin, Kathy. Available from: Schlitz Audubon Center, 1111 East Brown Deer Road, Milwaukee, WI 53217. $10.00 plus $2.50 tax, postage, and handling.

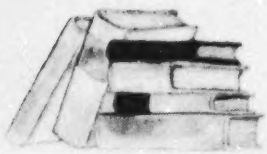
This curriculum provides Grades 4-6 urban children with hands-on activities that will build their understanding of and concern for their environment. The urban environment is viewed, not as a negative, non-wilderness place; but as a place where people can learn to have an influence on their surroundings. The curriculum consists of 11 units written around such broad concepts as transportation, urban sprawl, water and water consumption, ecology, recycling, water quality, natural resources, economics, and others. Within each unit are activities designed to be infused into the standard subject areas. This interdisciplinary approach provides activities which "environmentalize" concepts already taught in the upper elementary curriculum. Activities are designed to be used in the classroom, on school grounds, and in the immediate urban environment. The approach is hands-on and the focus is on the student's relationship to the earth. Each unit consists of an introductory sheet highlighting unit topics/activities, list of concepts fostered, ways to introduce the unit, student activities, and student activity sheets. Objectives, materials needed, time required, and instructional strategies are provided for each activity.

ED220346 – **Earth, Sea, & Sky. Environmental Activities for Preschool Through First Grade.** Hulnick, Andrea; and others. Available from: Environmental Education Association of Oregon, P.O. Box 40047, Portland, OR 97240. $6.50 each, 10 copies or more $3.90 each.

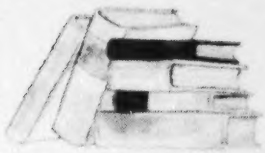
Environmental education activities for young children are provided. Focusing on trees/plants, food/harvesting, energy, recycling, and animals. The simple activities have been designed to foster development in the following areas: social, self-awareness, behavior, language, motor development, and problem-solving. Recommended age range, recommended number of children participating, materials needed, instructions, and helpful hints (accompanied by illustrations) are provided for each activity. Typical activities include making a hand tree; spackle painting with leaves; preparing a dry leaf collage; fingerpainting with leaf shapes; making applesauce, peanut butter, fruit salad, fruit smoothies, cornbread, pumpkin pie, vegetable stew, and whole wheat muffins; making sun tea; making solar collectors; constructing paper airplanes; working with balloons, cork sailboats, candles, and drills; recycling projects, emphasizing classification skills; fingerpainting fish; drawing whales; constructing an ocean mural; constructing birdfeeders from plastic bottles and pinecones; making and using binoculars; creating animals from playdough and potatoes; face painting; and making animal hats. Lists of recommended books and suggestions for field trips are also provided.

ED184864 – **Urban Environmental Education Project, Curriculum Module VI: Solid Waste – Trash or Treasure?** Biglan, Barbara.

Included in this module are four activities dealing with issues of solid waste disposal relative to urban concerns. Included activities are: 1) sources and composition of solid waste; 2) a "garbage game"; 3) disposal options for solid waste; and 4) an example county plan for solid waste disposal. Also included are an overview, teacher background information, an activity preview, a pretest, and a module evaluation form.



BOOKS FOR YOUNG RECYCLERS



NOTE: This is a listing of books which have been printed concerning solid waste. Some books are out of print and may be available through libraries or specialty bookstores.

About Garbage and Stuff. Ann Zane Shanks, with photographs by the author. Viking Press, New York, 1973.
An introduction to the concepts and process of recycling waste materials. Uses a real family in a direct photographic narrative with accompanying text. Approximate grade level 3.*

A World Fit for Chipmunks and Other Living Things. Available from MPCA. (See Minnesota Resources.)
Coloring book on recycling, litter, intended for Grades K-3.

Clean Streets, Clean Water, Clean Air. Chapin, Cynthia; Albert Whitman and Co., Chicago, 1970; 31 pages, $7.75; 560 West Lake Street, Chicago, IL 60606.
About street cleaning, garbage disposal, sewage treatment, water filtration, etc. Early childhood — Grade 3.

Garbage As You Like It: A Plan to Stop Pollution By Using Our Nation's Wastes. Jerome Goldstein, Rodale Books, Inc., 1969.
Explains that each one of us, as individual citizens, are the ones who will decide how the waste disposal problem will be solved. Introduces the concept of composting as a solution to the waste problem. Junior-Senior High School.

Garbage: The History and Future of Garbage in America. Katie Kelley, Saturday Review Press, 1973.
A humorous, but fully documented history of garbage which includes a survey of the entire field of garbage collection and disposal today. Junior and Senior High.

Garbage: The History and Future of Garbage in America. Saturday Review, 1973.
Garbage accumulation and unnecessary packaging is promoted by American technology to the extent that U.S. Government is the nation's largest litterbug. Junior and Senior High.

Going to Waste: Where Will All the Garbage Go? James Marshall, Coward, McCann and Geoghegan, New York, 1972.
Discusses the solid waste problem in the United States and gives concrete contributions the individual can make to find a safe, practical and profitable means of waste disposal. Approximate grade level 9.*

How Do They Get Rid of It? Suzanne Hilton, Westminster Press, Philadelphia, 1970.
How we really do get rid of wastes is sometimes shocking, sometimes frightening, and many times, hopeful. This book explains the problems and how trash can become a treasure. Approximate grade level 7.*

It's Your Environment — Things to Think About, Things to Do. Environmental Action Council, Charles Scribner's Sons, New York, 1976.
Text, illustrations and suggested projects in recycling paper and metal, solid waste and packaging. Approximate grade level 3-6.*

Let's Be Nature's Friend! Written and illustrated by Jack Stokes, H.Z. Walck, New York, 1977.
Offers suggestions, in verse, for improving our environment through such activities as recycling glass bottles, putting tea leaves on the garden, and writing congressmen to encourage their passing laws against pollution. Approximate grade level 3.*

Let's Go To A Recycling Center. Michael Chester, Illustrated by Paul Frame. G.P. Putnam's Sons, New York, 1977.
Kathy becomes interested in cleaning up. She visits a nearby recycling center and learns how to sort each type of material into its correct place. Later, she goes on a bus tour to manufacturing plants for glass, metal, and paper to see these items processed. Includes glossary and list of things to do. Grades 3-4.

*Using Frye Readability Formula

Let's Go To A Sanitation Department. Joanna Cochrane Harris, G.P. Putnam's Sons, New York, 1972.

Describes useful ways to use garbage with high technology — burning to make electricity, burned and used to make gravel and cement, etc. Describes the sanitation departments role in ecology. At the end of the story is a list of projects which children can do. Approximate Grade 6.*

Litter — The Ugly Enemy: An Ecology Story. Dorothy E. Shuttlesworth. Doubleday and Company, Inc., Garden City, New York, 1973.

Describes how litter pollution is studied, and how it is conquered by scientists, technicians, and private citizens. Approximate grades 7-8.*

Man and His Environment: Waste. Wesley, Marx, Harper and Row Publishers, New York, 1971; 178 pages, $6.00, $3.25 paperback, 49 East 33rd Street, New York, NY 10016.

Concerned with proper waste disposal — the problems and possible solutions. Grades 10-12.

Nature's Assistant. Victoria Cox and Stan Applebaum, Golden Press, New York, 1974.

Compares man's waste disposal process. Man should become nature's assistant by recycling wastes. Approximate Grades 6-7.*

Only Silly People Waste. By Norah Smaridge, illustrated by Mary Carrithers, Abingdon Press, Nashville and New York, 1976.

Fourteen humorous poems make a case for conservation of electricity, toothpaste, paper, water, band-aids, and other frequently wasted items. Approximate grade level 6.*

Our Dirty Land. Written and illustrated by Sarah M. Elliot, Julian Messner, New York, 1976.

Discusses many aspects of our present, polluted environment, including refuse disposal methods, the Wilderness Act, strip-mining, pesticides, land laws and activities to make each one of us a land saver. Approximate grade level 4-5.*

Recycling: How to Reuse Wastes in Home, Industry, and Society. Jerome Goldstein, Schocken Books, 1979.

By using experiences of different people and organizations across the country, waste reduction and recycling are described. It also explains the personal and social problems associated with high waste generation. Junior and Senior High.

Recycling Resources. Lawrence Pringle, Macmillan Publishing Co., Inc., New York, 1974.

Shows how the solid waste problem began and what can be done about it. It explains current methods of recycling and describes the research that may lead to new methods. Grade 7.*

Recycling: Reusing Our World's Solid Wastes. James and Lynn Hahn, Franklin Watts, New York, 1973; 66 pp. illustration.

Explains recycling, man's need for it, and present and suggested methods of performing the task of reusing waste materials. Approximate grade level 7.*

Recyclopedia: Games, Science Equipment and Crafts from Recycled Materials. Simon, Robin, Houghton Mifflin, Boston, 1976.

How to create exciting new things from inexpensive readily available objects we tend to ignore. Activities for Grades K-5.

Save It: Keep It! Use It Again! A Book About Conservation and Recycling. R.J. Lefkowitz, illustrated by John E. Johnson. Parent's Magazine Press, New York, 1977.

Discusses the ways that scarce natural resources can be conserved through recycling. Approximate grade level 5.*

Sparrows Don't Drop Candy Wrappers. Margaret Gabel, illustrated by Susan Perl. Dodd, Mead, New York, 1971.

Simple do's and don'ts telling how each one of us can help in small, vital ways to make this world a better place to live. Approximate grade level 4.* May recommend activities which are extreme to the goals of an environmental education program.

The Compost Heap. Harlow Rockwell, Doubleday and Co., Inc., Garden City, New York, 1974.

Explains in simple terms how a compost heap is made and how it turns into soil. Colorfully illustrated. Grades 2-4.*

*Using Frye Readability Formula.

There Lived A Wicked Dragon. U.S. EPA, 1973. Available from MPCA. (See Minnesota Resources.)
An environmental coloring book for adults and children.

The Waste Watchers: A Citizen's Handbook for Conserving Energy and Resources. Aurthur H. Purcell, Doubleday/Anchor Press, 1980.
Describes practical waste-reducing strategies each of us can practice to make our lives safer, cleaner, cheap, and more pleasant. Junior-Senior High School.

Too Much Garbage. Patricia Lauber, Garrard Publishing Company, Chicago, Illinois, 1974.
Explains the solid waste problem, and then explores ways in which we can stop wasting waste and harming our environment, especially making less garbage. Approximately Grades 2-3.*

Waste is Wealth. C. Leroy Hacker, Dorrance & Company, Philadelphia, 1970.
Suggests ways by which the garbage problem can be alleviated through reclaiming waste and converting it into useful and necessary products. Junior-Senior High School.

What Happens to Garbage? Rona Beame, Julian Messner, New York, New York, 1975.
Discusses the means used by New York City to dispose of its refuse and what new disposal methods are currently being considered. Approximate Grade 5.*

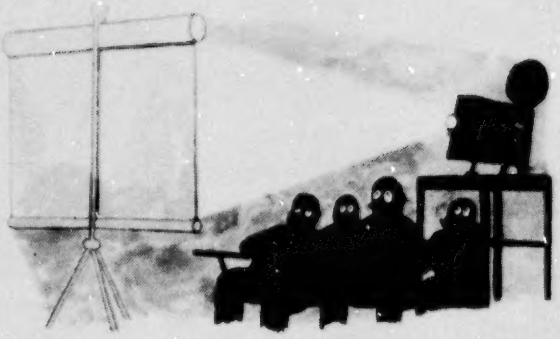
Where Does the Garbage Go? Paul Showers, illustrated by Loretta Lustig. Corwell, New York, 1974.
Explains what happens to our garbage once it has been dumped — where it goes and how it can be used. Approximate grade level 4.*

Who Cares: I Do. Leaf Munro, J.B. Lippincott Co., Philadelphia, 1971.
A well-illustrated booklet on the ugliness of litter, explaining why we should care about our environment. Many photographs. Grades 4-6.

Who Keeps America Clean? Barbara Steinbert, Random House, New York, 1976 (one of a series of career education books).
Career opportunities in the field of environmental protection, featuring first person accounts by a wildlife manager, civil engineer, recycling plant manager, noise-pollution inspector, sewage plant operator, and others. Approximate grade level 5.*

*Using Frye Readability Formula

AUDIO VISUALS



Available from the General Services Administration, National Archives and Records Service, National Audio-Visual Center, Washington, D.C. 20409, or telephone 301/763-1896.

The Phoenix
22 min., 16mm film
Title No. 009234/RE Rental $12.50; Sale $127.50

Explores the materials use cycle and its role in solid waste. Traces the collection, transportation, and disposal of waste in Kansas, and analyzes current attempts to recover materials and energy from the solid waste stream. Discusses proper waste management practices, focusing on land disposal of municipal wastes and safe disposal of feed-lot wastes which are abundant in a state with large cattlefeeding operations. Suggests what roles the consumer can play in such programs.

The Realities of Recycling
39 min., 16mm film
Title No. 002177/RE Rental $15.00; Sale $226.25

Shows a variety of equipment being used to recover and reuse materials from solid wastes. Existing markets for glass, aluminum, and steel containers, paper and old car hulks are described. Along with new technology being investigated and demonstrated under provisions of the Solid Waste Management Act.

Recycling
22 min., 16mm film
Title No. 002180/RE Rental $12.50; Sale $127.50

Shows a variety of efforts to recover and reuse more of our discards. Explains how this approach adds the dual benefit of conserving our resources while minimizing the expense and difficulty of solid waste disposal. Illustrated new techniques that are being investigated and demonstrated under provisions of the Solid Waste Management Act.

The Stuff We Throw Away
23 min., 16mm film color
Title No. 0022001/RL Rental $12.50; Sale $133.50

Describes the massive problem of collecting and disposing of America's solid wastes. (Review by MUCC.)

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Available from Learning Corporation of America, Sales/Service Dept., 1350 Avenue of the Americas, New York, NY 10019, or telephone 212/397-2655.

Uncle Smiley Goes Recycling
13 min., color, 16mm film, 1972
Rental $25.00; Sale $225.00

Entertaining, spirited and therefore possibly motivating. Child should understand the concept of recycling before viewing. A group of children come into Uncle Smiley's Shop and persuade him to take them "recycling." They pick up various items in a pushcart and later transport them in a bright red antique car (which turns out to be a polluter). No narrative; the slapstick action is set to music. Top recommendations from previewers. Grades K-6. (Review from Garbage Reincarnation.) Film is available in all video formats.

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Available from PSU Division of Continuing Education, P.O. Box 1383, Portland, OR 97207, or telephone 503/229-4890.

The Soiled Frontier
27 min., 1973, Rental $15.25 (1-2 days)

An interesting, well-made Oregon film showing air, water, and solid waste pollution problems. Contrasts Oregon beauty with Oregon eyesores. Effective selection of detail for camera work, and recognizable scenes give impact. Deals with auto exhaust, oil, junk cars, litter and the bottle bill, and estuary landfill. Asks the viewer to make a personal commitment to protecting the environment. Shows the importance of small acts and creates a positive attitude by showing successful clean-ups and improvements. (Review from Garbage Reincarnation.)

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Available from the University of Iowa, Audio Visual Center, C-4 Seashore Hall, Iowa City, IA 52242, or telephone 319/353-5885.

Recycling Waste
#U30214, 16mm, color, sound, 12 min.
Rental $10.30 (3 days)

Demonstrates Recycling of paper, glass and metal, thus turning waste and trash into a resource. Also raises the question of who bears the cost for cleaning up the environment. Final sequence suggests technology may be used to change waste matter from something that works against us, to something that works for us.

Garbage Explosion: Saving the Environment
#US30253, 16mm, color, sound, 16 min.
Rental $12.00 (3 days)

Depicts the seriousness of the garbage disposal problem and some legal and illegal methods used to cope with it.

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Available from Eastern Film Depository, 11 Quire Street, Cranford, NJ 07016, or telephone 800/631-7345.

Litterbug
Rental $20.00

A Donald Duck film that illustrates several kinds of litter bugs — the beach bug, the sneak bug, the car-riding bug — and illustrates the seriousness of the litter problem by reducing it to the laughable. Use this to introduce the whole notion of litter, and have students orally describe other varieties of litter bugs they have observed. A possible follow-up is to sketch cartoons showing the varieties of litter bugs.

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Available from Texture Films, Inc., P.O. Box 1137, Skokie, IL 60076, or telephone 312/256-4436.

More

An award-winning non-verbal animated film showing how the earth is straining to meet man's ever-growing consumption. A good introduction for other films which present possible solutions. 1973. 3 min., Grade 3 and up. Purchase $160.00, or rental $35.00 (one day showing).

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Available from MPCA, 1935 West County Road B2, Roseville, MN 55113, or telephone 612/296-7373 (Public Information Office).

Junk Dump
10 min.

This film uniquely presents the problem of solid waste disposal. It portrays one day in the life of a couple who pursue their "normal" activities in a garbage dump setting. Primary grades.

Recycling
20 min.

Shows some emerging techniques on reuse, recovery, and recycling of resources — how materials now ending up as municipal solid waste can be used to extend the supply of natural resources.

How About It?
7 min.

Children themselves demonstrate how they can join the fight against litter — reminding others to use litter baskets, picking up and disposing of trash, and helping to keep their community clean.

Meecology
30 min.

An excellent environmental film for children, produced by McDonalds. The film stresses what children can do to help protect our environment.

Use It-Use It Up
25 min.

MPCA slide and cassette tape narrative describes how the goals of conserving resources and reducing waste at the source make economic and environmental sense. Provides suggestions to accomplish these goals. 1977. Grade 5 and up.

Let's Help Recycle
11 min.

ACI Productions. Shows school children going before the City Council to report on recycling. Shows students preparing materials for recycling. Encourages source reduction. Would probably hold interest of younger students. 1973. Grades 3-7.

Recycling Resources

Association of Secondary Materials Industries. Discusses recycling and how it works, what major recycling problems are, and how the public, industry, and government can help the recycling effort. 1971 filmstrip.

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Available from FilmFair Communications, 10900 Ventura Boulevard, P.O. Box 1728, Studio City, CA 91604, or telephone 213/985-0244. Also available from California Extension Media Center, 2223 Fulton Street, Berkeley, CA 94720, or telephone 415/642-0460.

Recycling in Action
14 min., 16mm film
Code number 604.6
Purchase — $245.00; Rental — $25 (FilmFair), $26 (University)

The film first establishes the need for recycling solid waste products in a society of "endless consumption" and then makes a general introduction to community reclamation centers.

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Available from Third Eye Films, 12 Arrow Street, Cambridge, MA 02138, or call 617/354-1500.

Energy Where You Least Expect It
28 min., 16mm film
Purchase — $450.00; Rental — $45.00

Seven successful waste-to-energy products (large and small scale) are documented. A number of different technologies are also illustrated, including recycling. The film is humorous and upbeat. Narrated by Max Gail of ABC's "Barney Miller" T.V. show.

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Available from Journal Films, Inc., 930 Pither Avenue, Evanston, IL 60202, or call 312/328-6700, toll-free 800/323-5448.

Recycling Waste
12 min., 16mm film
Rental (3 days) – $25.00

Shows how raw materials can be conserved and pollution curbed by turning waste into useful products. Also explores who will bear cost for cleaning up the environment. Designed for Intermediate, Junior to Senior high school.

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Available from Bullfrog Films Inc., Oley, PA 19547, or telephone 215/779-8226.

Organic Gardening: Composting
11 min., 16mm film
Rental – $20.00; Purchase – $200.00

Film shows how to make a compost heap using live action and animation. Includes what ingredients to use; in what proportion; and how to layer the heap to ensure speedy and uniform decomposition. Interesting for upper elementary, junior and senior high students and adults.

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Available from Bureau of Audio-Visual Instruction, University of Wisconsin-Extension, P.O. Box 2093, Madison, WI 53715.

Man Builds, Man Destroys: Through the Mill Once More
Film #0030, 1974
Color, 30 min., 16mm film
Rental $12.50

Presents some of the realities of action that man has taken in the area of recycling to prescribe the limited resources of this planet. Covers such activities in a number of countries including Japan, Belgium and the United States. Shows one U.S. town that has adopted almost a complete recycling program. May be purchased from Great Plains National Instruction Television Library, P.O. Box 80669, Lincoln, NE 68501. The purchase price is $450.00.

Stuff We Throw Away
Film #7923, 1971
Color, 22 min., 16mm film
Rental $11.00

Discusses solid waste disposal. Illustrates several management techniques operating nationwide (as of 1967), which are supported partially by the Environmental Protection Agency.

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Available from University of Illinois Film Center, 1325 South Oak Street, Champaign, IL 61820, or telephone 1-800-367-3456.

The Garbage Explosion (Saving the Environment)
Color, 16 min., 16mm film
#54623; Rental – $10.00

Uses live-action photography to investigate the nature, volume, and composition of solid wastes produced by our modern society. Discusses advantages and disadvantages of current disposal methods. High temperature incineration, research into development of water-soluble glass, and efforts to convert solid wastes into reusable metal products are shown as examples of some new ways of cleaning up our environment. A 1970 production.

Up to Our Necks: The Garbage Problem
Color, 25 min., 16mm film
#32134; Rental $13.70

Documents the colossal problem of waste disposal in modern society and explores some of the alternatives now available in the search for solutions. A 1969 production.

Urban Ecology: Garbage Disposal
Color, 8 min., 16mm film
#03514; Rental $7.45

Discusses ways in which cities dispose of trash and garbage by burning it, by covering it with dirt, or by dumping it in the ocean, and points out the need to find new methods of disposal, such as recycling. Asks the question, "What can we do to make less trash?" A 1971 production.

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Available from Pathway Productions, 0350 SW Dakota Street, Portland, OR 97201, or telephone 503/244-7292.

Recycling: Waste Into Wealth
3/4", 1/2" (VHS and BETA) video tape
30 min., 16mm film
Purchase price — $450.00

Film presents information on recycling, its benefits to the community, labor, and the environment. The film is extremely well done and includes discussions on curbside recycling and composting. A 1983 production.

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Available free from the Aluminum Association, Inc., 818 Connecticut Avenue, N.W., Washington, D.C. 20006, or telephone 202/862-5100.

Recycling: A Way of Life

A 16mm, color, 20 min., sound motion picture which presents various recycling activities in an urban environment — composting, reusing, and materials recycling. The film follows the aluminum recycling process from can collection to loading the aluminum or shipping pallets.

Recycling: Lifestyle With a Future

A filmstrip kit which focuses on the connection between lifestyle and recycling. To practice recycling effectively, students must change habits of consumption and rethink attitude.

PAMPHLETS, NEWSLETTERS . . . ETC.

1. "Eco-News," a cheerful, informative, cartoon-illustrated newsletter about the environment for today's urban and suburban children, Grades 4-6. Each 8-page issue explores a different environmental theme that youngsters can relate to, and is packed with learning activities for young people to do on their own, or together with classmates and teachers. Available from Environmental Action Coalition, 156 Fifth Avenue, New York City, NY 10010. Write for information and price sheet.

2. "Michael Recycle," a colorful comic book where Michael Recycle teaches children not to throw away things that can be used again — especially aluminum products. Distributed by Reynolds Aluminum Recycling Co., Richmond, VA 23261.

3. "The Garbage Game," a jigsaw puzzle ecology game. Each 128-piece puzzle contains 7 colorful cartoons. Each cartoon depicts an everyday situation in which people at home waste or throw away materials — and suggests ways in waste material could be recycled. For 2-6 players, Grade 5 and up. Produced by Spinnaker, Enfield, Connecticut 06082. Available on loan basis from the ECOL Library.

4. "Environmental Action: Recycling Resources," The Creative Teacher, 1971. Sponsored by Continental Can Co. A game that can be played in the classroom by up to 20 students at a time. Includes filmstrips and facilitates discussion of recycling issues. Junior High and up. Available on loan basis from the ECOL Library.

MINNESOTA'S RESOURCES

Libraries

Environmental Conservation Library of Minnesota (ECOL), Minneapolis, Public Library, 300 Nicollet Mall, Minneapolis, MN 55401. Telephone 612/372-6609.

A library designed to serve a variety of agencies and individuals including teachers and students. The collection focuses on natural resources of Minnesota with emphasis on peoples' impact on them. Knowledgeable personnel, organized materials, and contacts with other sources of information are intended to provide service to users and libraries throughout the State.

Environmental Library of Minnesota, 1222 4th Street S.E., Minneapolis, MN 55414, telephone 612/331-8025.

ELM publishes a newsletter, **Full Monthly Moon Memo**. It offers library service to everyone, including environmental groups and government agencies, and assists in locating specific or general information concerning environmental problems.

Minnesota Pollution Control Agency (MPCA)

Solid and Hazardous Waste Division, 1935 West County Road B2, Roseville, MN 55113. Telephone 612/296-7373 (Public Information Office).

The Minnesota Pollution Control Agency (MPCA) has a wide variety of curriculum, audio-visuals, and informational materials available to teachers and students interested in solid waste management. Following is a list of resources which are available on loan at no charge from the MPCA.

CURRICULUM:	Page Number
A Case in Point (Case Study Case)	6
A Question of Priorities (Case Study Case)	6
California Course of Study	
Community Problem Solving	4
Composting Curriculum	3
CONNECTIONS: Appropriate Technology	3
Do-It-Yourself Guide to a Solid Waste Seminar	
Don't Waste Waste	3
Equinox	4
Florida Teacher's Aid	4
Follow the Three R's: Recycle, Refuse, Reuse	4
Garbage Reincarnation	4
Guidelines for Recycling Wastes in Schools	4
Haphazard Handling of Solid Wastes (Case Study Case)	6
Hawaii Environmental Education K-12 Curriculum Guide	5
Illinois Livestock Waste	
Investigating Your Environment, Teaching Materials for Environmental Education	4
Is One Way No Way? (Case Study Case)	6
It's Your Environment	11

Kansas City Recycling Team	5
Let's Recycle/Your World, Your Environment	4
Life In Guam	4
Lots and Lots of Feedlots (Case Study Case)	6
MEA Energy Activities	3
Minneapolis Curbside Curriculum	3
MUCC Solid Waste Packet	6
Ontario Divide and Conquor	3
Project SAVE	5
Put Your Garbage to Work	5
Reduce, Reuse, Recycle	5
Reject, Reuse, Recycle	5
Something From Nothing	6
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* * * *

The *Wizard of Waste* and *Trash Monster* Environmental Education Programs were developed by SWRL Educational Research and Development under contract from the California Solid Waste Management Board, 1020 Ninth Street, Suite 300, Sacramento, CA 95814, (916) 322-3330. In California call (800) 952-5545 toll free.

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